

**APPLICANT ARGUMENTS OR REMARKS**

Claims 1 – 5, 7 - 11 and 13 -16 are now in the application. Claims 1, 5, 7, 9, 11, 13 and 15 are amended. Claims 1, 7 and 13 are independent claims.

**Allowable Subject Matter.**

The Office Action rejected claims 1 – 6 under 35 USC 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention, but indicated that if amended to overcome the rejections, claims 1 – 6 would be allowable.

As detailed below, applicants have amended claims 1 and 5 to overcome the rejections raised in the Office Action.

Applicants, therefore, submit that claims 1-5 are now in compliance with 35 USC 112, second paragraph, and respectfully request that the rejections be withdrawn and claims 1 – 5 be allowed.

Claim 6 has been cancelled, and the objection to it is therefore moot.

**Claim Rejection Under 35 U.S.C. 112.**

The Office Action rejects claims 1-18 under 35 U.S.C. 112, second paragraph.

a). In particular, in claim 1, the Office Action states that it is not clear what the source of “a mixture is”.

Applicant has amended claim 1 to now read, in relevant part:

“b) injecting a mixture into said flame cell. “

Support for this amendment is found, for instance, in the specification at paragraph [0032].

b). In claim 6, the Office Action states that it is not clear how the oxidant can be present without an ignition zone. The same rejection is applied to claims 12 and 18.

Applicant has cancelled claims 6, 12 and 18 and these rejections are, therefore, moot.

c). In claim 7, the Office Action states that “providing” is a method step, not a structural limitation. Applicant has, therefore, amended claim 7 to now read, in relevant part:

“a flammable mixture“

d). In claim 7, the Office Action states that there is no structural connection between the calculating means and the remainder of the apparatus. Applicant has, therefore, amended claim 7 to now read, in relevant part:

a combustible gas concentration calculating means operatively connected to said measuring means and capable of using said temperature for determining a concentration of combustible gases in said gas sample

A similar amendment has been made to claim 13.

e). In claim 9, the Office Action states that “said gas” should be “said neutral gas”. The claim has been so amended, as has claim 15.

f). In claim 11, the Office Action states that “providing” and “using” are method steps, not structural claims. The claim has been amended to address this rejection.

g). In claim 11, the Office Action states that “aid second” should be “said second”. The claim has been so amended.

h) The rejection of claim 17 is moot as it has been cancelled.

Applicants submit that by these amendments, all pending claims are now in compliance with 35 USC 112, second paragraph. Applicant therefore requests that these rejections be withdrawn and all pending claims, as amended, now be allowed.

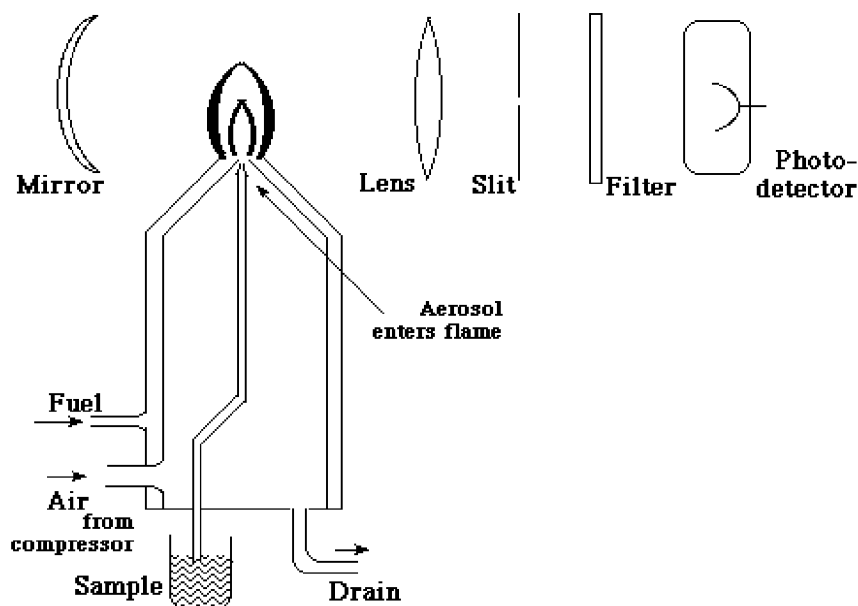
#### **Claim Rejection Under 35 U.S.C. 103(a)**

The Office Action rejects claims 7 - 18 as obvious over Chapman et al (article in Analyst of July 1969, Vol. 94, pp 563 – 568 “Performance of Pre-mixed, Oxygen enriched

Air-Acetylene Flame in Flame-emission Spectrophotometry) in view of Huang (U.S. Patent 6,485,689).

Chapman describes an experimental apparatus incorporating the burner and fog chamber of an SP900 Unicam flame spectrometer and in which “oxygen was fed via a flow-rate meter and needle valve into the compressed air line at a point just before the nebulizer. Air and oxygen were mixed in the nebulizer and fed, with the aerosol, into the fog chamber. In this system, the aerosol – oxidant and fuel were mixed in the burner stem”.

Although Chapman gives no diagram of the apparatus, a typical flame emission spectrometer is shown below:



In conventional flame emission spectrometry, the sample solution is nebulized (converted into a fine aerosol) and introduced into the flame where it is desolvated, vaporized, and atomized, all in rapid succession. Applicants reading of Chapman is that their modification was to add oxygen to an air-acetylene fuel mixture to get a higher temperature flame in which an oxygen rich fuel and the sample are all mixed in the burner stem prior to entry into the flame.

While this may, as the Examiner suggests, result in an inner ignition zone, that inner ignition zone will also include the sample gas.

Applicants claimed invention of claim 13, in contrast, has the sample diffuse into the flame from outside the flame so that the inner ignition zone will have no sample gas.

To clarify this difference, and further distinguish applicants' claimed invention from the cited prior art, independent claim 7 has been amended to read, in relevant part:

an injection means for injecting said mixture into said flame cell;

a burning means for burning said mixture inside said gas sample filled flame cell, thereby creating a diffusion flame including a main reaction zone wherein said gas sample diffuses into said diffusion flame and an inner ignition zone free of said gas sample ;

Independent claim 13 has similar language.

As neither Chapman or Huang teach, or make obvious, a system in which the flame occurs in a main reaction zone that is filled with the sample gas, or a flame that has an inner ignition zone free of the sample gas, they do not, alone or in combination, anticipate or make obvious, applicants claimed invention of independent claims 7 and 13.

Applicants submit that these amendments place independent claims 7 and 13 in condition for allowance and therefore request that these claims, as amended, be allowed.

Applicant submits that claims 8 -11 and 14 – 16 each depend from, and include all the limitations of, a now allowable independent claim. Applicant therefore requests that these claims, as amended, now be allowed.

**Summary**

Therefore in view of the foregoing amendments and remarks, applicants respectfully request entry of the amendments, favorable reconsideration of the application, withdrawal of all rejections and objections and that claims 1 – 5, 7 - 11 and 13 -16 be allowed at an early date and the patent allowed to issue.

Respectfully submitted,

Christopher Schaeffer

By

/Roy J. Rosser/  
Roy J. Rosser  
Agent for Applicant  
Reg. No. 53,533  
(609) 844 - 7406 (Direct Dial)

Fox Rothschild LLP  
997 Lenox Drive, Bld. #3  
Lawrenceville, NJ 08543

Tel. (609) 924-3773  
Fax (609) 924-1811